

Patent claims

1. A method for monitoring a vibration gyro, which represents  
a resonator and is part of at least one control loop which  
5 excites the vibration gyro by supplying an excitation  
signal at its natural frequency, in which case an output  
signal can be tapped off from the vibration gyro, from  
which the excitation signal is derived by filtering and  
amplification, characterized in that the Q-factor of the  
10 resonator is measured, and in that a fault message is  
produced if the Q-factor is below a threshold value.
2. The method as claimed in claim 1, characterized in that  
the excitation signal is switched off, and in that the  
15 amplitude of the decaying output signal is evaluated in  
order to produce the fault message.
3. The method as claimed in claim 2, characterized in that  
the fault message is produced when the amplitude of the  
20 output signal is below a predetermined value after a  
predetermined time.
4. The method as claimed in claim 1, characterized in that an  
additional phase shift of the excitation signal is  
25 inserted temporarily into the control loop, and in that  
any frequency change caused by this is evaluated.
5. The method as claimed in claim 4, characterized in that,  
after amplification and analog/digital conversion, the  
30 output signal is demodulated to an in-phase component and  
a quadrature component, in that the quadrature component  
modulates a carrier, after filtering, which carrier is  
supplied as an excitation signal to the vibration gyro, in  
that the in-phase component is supplied, after filtering,  
35 to a PLL circuit, which controls the frequency and the  
phase

of the carrier, in that a signal which corresponds to the frequency change is supplied to the PLL circuit in order to shift the phase of the excitation signal, and causes a phase change in the carrier.

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6. The method as claimed in claim 5, characterized in that the phase shift is approximately  $10^\circ$  with respect to the carrier.

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- 9 -